a manipulation step, of manipulating said regions to determine a plurality of further regions, wherein each said further region has a corresponding compositing expression;

a classification step, of classifying said further regions according to at least one attribute of said graphical objects within said further regions;

A7 cont.

a modification step, of modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized compositing expression for each said further region compared to said corresponding compositing expression, wherein one or more objects within said further regions are eliminated from one or more of said corresponding compositing expressions depending on said classifications; and

a composite step, of compositing said image using each of said optimized compositing expressions.

REMARKS

This application has been reviewed in light of the Office Action dated February 13, 2002. Claims 1 to 76 are pending in this application. Claims 73 to 76 have been added to provide Applicant with a more complete scope of protection. Claims 1, 14, 25, 38, 49, and 62 have been amended to define still more clearly what Applicant regards as his invention, in terms that distinguish over the art of record. Claims 1, 14, 25, 38, 49, 62, and 76 are in independent form. Favorable reconsideration is requested.

Claims 1 to 72 were rejected under 35 U.S.C.§ 102(e) as being anticipated by U.S. Patent No. 5,479,603 (*Stone et al.*).

Independent Claim 1 is directed to a method of creating an image. The image is formed by rendering and compositing at least a plurality of graphical objects, each object having a predetermined outline. The method comprises the steps of dividing a space in which the outlines are defined into a plurality of regions, each region being defined by at least one region outline substantially following at least one of the predetermined outlines or parts thereof and

being substantially formed by segments of a virtual grid encompassing the space. The regions are manipulated to determine a plurality of further regions, where each further region has a corresponding compositing expression, and the further regions are classified according to at least one attribute of the graphical objects within the further regions. Each corresponding compositing expression is modified according to a classification of each further region to form an optimized compositing expression for each further region compared to the corresponding compositing expressions. Still further, the method comprises the step of compositing the image using each of the optimized compositing expressions.

Stone et al., as understood by Applicant, relates to a method of operating a processor-controlled machine having a display for displaying images, and to a processor-controlled machine operated according to the method. Applicant understands the object of *Stone et al.* is to provide a method for accessing alternative views of an information model data structure. *Stone et al.* states at column 3, lines 37 to 47 that a problem with at least one of the prior methods for displaying an image is, that while a software implementation of such a method can provide some desirable features for generating the display of a composite alternate view of an original image, the range of information content possible in a second image which is derived directly from an image pixel data structure of a first image is necessarily limited to versions and views of the first image which result only from operating on pixel values. Further, for information available from an information model data structure of the first image, *Stone et al.* states that methods for operating on the image pixel data structure to produce image (pixel) magnification are not transferable.

In view of the above object, *Stone et al.* discloses a method for operating in a processor-controlled machine to produce a composite view of an original, or first, image by combining the functions of multiple viewing operations and using the model data structure from which the first image was produced (referred to as FIMDS). A first viewing operation region (1VOR) in a first viewing position in the display area of the display device has displayed in the 1VOR a second image produced according to a first viewing operation (V01), associated with the

1VOR, that maps the FIMDS to image definition data defining the second image. Request signal data is received from a signal source to present a second viewing operation region (2VOR) in the display area coextensive with at least a portion of the 1VOR, forming a composite viewing operation region in the overlapping region. The 2VOR has a second viewing operation (V02) associated with it for mapping an input model data structure, typically the FIMDS, to image definition data defining a second image for display in the 2VOR (2VOR-SI), providing an alternate view of the FIMDS that is different from that provided by the VO1 associated with the 1VOR. In response to the request signal data, a composite viewing operation, composed from the functions of the V01 and V02, maps the FIMDS to image definition data defining a composite image for display in the composite viewing operation region substantially at the same time as the first image is being displayed in the display area.

The Office Action states that *Stone et al.* discloses at column 4, Table 1 and in lines 62 to 67, the step of dividing a space in which the outlines are defined into a plurality of regions . . . formed by segments of a virtual grid encompassing the space. Applicant's understanding is that Table 1 of *Stone et al.* merely lists some elements with respective abbreviations for ease of explanation. Further, at column 4, lines 62 to 67, *Stone et al.* discloses that a first viewing region (1VOR) in a first viewing position in the display area of the display device, is provided, where the first viewing operation region is positioned coextensively with the present image position of a first image segment of a first image. Still further, at column 19, lines 48 to 56, with reference to Figures 1, 4, and 5, *Stone et al.* states that the first step 220 of the method 200 is to receive a request to display a second viewing operation region 40 in a second viewing position in a display area 180 coextensive with the present image position of a second image segment (Box 220 of Figure 1 uses the term "portion" instead of segment) of a first image.

Applicant submits that, in general and particularly to column 4, Table 1, and at lines 62 to 67, *Stone et al.* does not disclose or suggest the particular claimed limitation of the present invention, as recited in Claim 1, whereby each region is substantially formed by segments of a virtual grid encompassing the space in which the region outlines are defined. As disclosed at

page 16, lines 5 to 22 of the present specification, there is typically a trade-off between how closely region boundaries follow graphical object boundaries and the benefits obtained. If region boundaries follow object boundaries very closely, considerable of work is usually involved in creating the region boundaries and in performing intersections and differences of regions. However, if region boundaries are too approximate, the region boundaries may either include large areas that are outside the objects' boundaries, resulting in too much unnecessary compositing, or they may fail to include large areas where known properties lead to optimization. Therefore, the method of the present invention improves the efficiency of region operations by choosing horizontal and vertical segments to represent region boundaries where as many as is practical of the horizontal and vertical segments of substantially all region boundaries are in phase. In other words, the horizontal and vertical segments are to be chosen from the horizontal and vertical lines of the same grid. The grid need not be regularly spaced, nor have the same spacing horizontally and vertically, although typically it will. Such a grid 900 is shown in Figure 22 of the present specification.

The Office Action further states that *Stone et al.* discloses at column 5, lines 38 to 49 a method whereby each compositing expression corresponding to a further region is modified according to a classification of the further region. Applicant's understanding is, that *Stone et al.* discloses at column 5, lines 38 to 49, that an image definition data defining a composite second image produced for display in a composite viewing operation region is produced according to a composite viewing operation, using size and shape dimensions of the composite viewing operation region. The composite view operation region is defined by a coextensively positioned portion of a first viewing operation region and the second viewing operation region, in the display area.

Applicant submits that, *Stone et al.* at column 5, lines 38 to 49 does not disclose or suggest the particular claimed limitation of the present invention, as recited in Claim 1, of modifying each corresponding compositing expression according to a classification of each further region to form an optimized compositing expression for each further region. For

example, as stated at page 6, lines 10 and 11 of the present specification, Figure 4 shows the image of Figure 3, together with the corresponding compositing operations after each of the compositing operations has been optimized. As described at page 10, lines 8 to 13, the compositing expressions provided in Figure 3 make no attempt to exploit the attributes (i.e., opacity properties) of the objects forming the image of Figure 3. If these opacity properties are used to simplify the compositing expressions for each region, the expressions of Figure 4 obtained resulting in a simplification (i.e., optimization) of the rendering of regions 2, 3, 5, 6, 7, 8, and 9 compared with Figure 3. These simplified (or optimized) compositing expressions result in far fewer pixel compositing operations being performed to produce the final picture. There is no disclosure in *Stone et al.* that abbreviations representing the different regions of *Stone et al.* or indeed the resulting regions themselves are in any way optimized. In this connection, Applicant further submits that, column 5, lines 38 to 49 or Figure 25 of *Stone et al.* does not disclose or suggest the particular claimed limitation of the present invention, as recited in Claim 1, of compositing the image using each of the optimized compositing expressions. As described above, these optimized compositing expressions result in far fewer pixel compositing operations being performed to produce the final picture.

Accordingly, Applicant submits that independent Claim1 is not anticipated by *Stone et al.*, and respectfully requests withdrawal of the 35 U.S.C. § 102(e) rejection.

Independent Claims 14, 25, 38, 49, and 62 include the same feature of modifying each corresponding compositing expression according to a classification of each further region to forma an optimized compositing expression for each further region, as discussed above in connection with Claim 1. Accordingly, Claims 14, 25, 38, 49, and 62 are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

New independent Claim 76 provides a method of creating an image. The image is formed by rendering and compositing at least a plurality of graphical objects, each object having a predetermined outline. The method comprises the steps of dividing a space in which the outlines are defined into a plurality of regions, each region being defined by at least

one region outline substantially following at least one of the predetermined outlines or parts thereof and being substantially formed by segments of a virtual grid encompassing the space, manipulating the regions to determine a plurality of further regions, wherein each further region has a corresponding compositing expression. The method further comprises the steps of classifying the further regions according to at least one attribute of the graphical objects within the further regions, and modifying each corresponding compositing expression according to a classification of each further region to form an optimized compositing expression for each further region. In particular, one or more objects within the further regions are eliminated from one or more of the corresponding compositing expressions depending on the classifications. The method also includes compositing the image using each of the optimized compositing expressions.

Applicant submits that for similar reasons as those discussed above for independent Claim 1, new independent Claim 76 is in condition for allowance. In addition, Applicant submits that *Stone et al.*, at column 27, lines 19 to 23 or lines 44 to 47 (see Office Action reasons for rejecting dependent Claims 10 and 11), does not disclose or suggest the particular claimed limitation of Claim 76, of one or more objects within the further regions being eliminated from one or more of the corresponding compositing expressions depending on the classifications of the objects. Applicant further submits that *Stone et al.* actually teaches away from this particular claimed limitation. In Applicant's understanding, *Stone et al.* merely discloses, at column 27, lines 44 to 47, that the viewing operation 200 is one of several tools that may be placed on a transparent overlay. Further, with reference to Figure 25 and the related description at column 30, line 54 to column 31, line 5, the composite region 34, represented by the abbreviation C1 + 2 + 3VOR, resulting from the three overlapping viewing operation regions, 1VOR, 2VOR, and 3VOR, includes each of these three viewing operation regions. There no disclosure in *Stone et al.* that one or more objects within the further regions can be eliminated from one or more of the corresponding compositing expressions. Accordingly, Applicant submits that independent Claim 76 is in condition for allowance.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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VERSION OF CLAIM MARKED TO SHOW CHANGES

1. (Amended) A method of creating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said method comprising [the steps of]:

a dividing step, of dividing a space in which said outlines are defined into a plurality regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof and being substantially formed by segments of a virtual grid encompassing said space;

a manipulation step, of manipulating said regions to determine a plurality of further regions, wherein each said further region has a corresponding compositing expression;

a classification step, of classifying said further regions according to at least one attribute of said graphical objects within said further regions;

a modification step, of modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized compositing expression for each said further region compared to said corresponding compositing expression; and

a composite step, of compositing said image using each of said optimized compositing expressions.

14. (Amended) A method of creating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said method comprising [the steps of]:

a dividing step, of dividing a space in which said outlines are defined into a plurality regions, each said region being defined by at least one region outline substantially

following at least one of said predetermined outlines or parts thereof and being substantially formed by, segments of a virtual grid encompassing said space, wherein each object has two region outlines arranged either side of said predetermined outline to thus define three regions for each said object, and wherein each said region has a corresponding compositing expression;

a classification step, of classifying said regions according to at least one attribute of said graphical objects within said regions;

a modification step, of modifying each said corresponding compositing expression according to a classification of each said region to form an optimized compositing expression for each said region compared to said corresponding compositing expression; and

a composite step, of compositing said image using each of said optimized compositing expressions.

25. (Amended) An apparatus for creating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said apparatus comprising:

dividing means for dividing a space in which said outlines are defined into a plurality regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof and being substantially formed by segments of a virtual grid encompassing said space;

manipulating means for manipulating said regions to determine a plurality of further regions, wherein each said further region has a corresponding compositing expression;

classifying means for classifying said further regions according to at least one attribute of said graphical objects within said further regions;

modifying means for modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized

compositing expression for each said further region compared to said corresponding compositing expression; and

compositing means for compositing said image using each of said optimized compositing expressions.

38. (Amended) An apparatus for creating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said apparatus comprising:

dividing means for dividing a space in which said outlines are defined into a plurality regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof and being substantially formed by segments of a virtual grid encompassing said space, wherein each object has two region outlines arranged either side of said predetermined outline to thus define three regions for each said object, and wherein each said region has a corresponding compositing expression;

classifying means for classifying said regions according to at least one attribute of said graphical objects within said regions;

modifying means for modifying each said corresponding compositing expression according to a classification of each said region to form an optimized compositing expression for each said region compared to said corresponding compositing expression; and

compositing means for compositing said image using each of said optimized compositing expressions.

49. (Amended) A computer program product including a computer readable medium having a plurality of software modules for creating an image, said image to be formed

by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said computer program product comprising:

a dividing module for dividing a space in which said outlines are defined into a plurality regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof and being substantially formed by segments of a virtual grid encompassing said space;

a manipulating module for manipulating said regions to determine a plurality of further regions, wherein each said further region has a corresponding compositing expression;

a classifying module for classifying said further regions according to at least one attribute of said graphical objects within said further regions;

a modifying module for modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized compositing expression for each said further region compared to said corresponding compositing expression; and

a compositing module for compositing said image using each of said optimized compositing expressions.

62. (Amended) A computer program product including a computer readable medium having a plurality of software modules for creating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said computer program product comprising:

a dividing module for dividing a space in which said outlines are defined into a plurality regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof and being substantially formed by segments of a virtual grid encompassing said space, wherein each object

has two region outlines arranged either side of said predetermined outline to thus define three regions for each said object, and wherein each said region has a corresponding compositing expression;

a classifying module for classifying said regions according to at least one attribute of said graphical objects within said regions;

a modifying module for modifying each said corresponding compositing expression according to a classification of each said region to form an optimized compositing expression for each said region compared to said corresponding compositing expression; and

a compositing module for compositing said image using each of said optimized compositing expressions.

73. (New) A method according to claim 1, wherein one or more objects within said further regions are eliminated from one or more of said corresponding compositing expressions depending on said classifications.

74. (New) An apparatus according to claim 25, wherein said modifying means is configured to eliminate one or more objects within said further regions from one or more of said corresponding compositing expressions depending on said classifications.

75. (New) A computer program product according to claim 49, wherein said modifying module is configured to eliminate one or more objects within said further regions from one or more of said corresponding compositing expressions depending on said classifications.

76. (New) A method of creating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said method comprising [the steps of]:

a division step, of dividing a space in which said outlines are defined into a plurality of regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof and being substantially formed by segments of a virtual grid encompassing said space;

a manipulation step, of manipulating said regions to determine a plurality of further regions, wherein each said further region has a corresponding compositing expression;

a classification step, of classifying said further regions according to at least one attribute of said graphical objects within said further regions;

a modification step, of modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized compositing expression for each said further region compared to said corresponding compositing expression, wherein one or more objects within said further regions are eliminated from one or more of said corresponding compositing expressions depending on said classifications; and

a composite step, of compositing said image using each of said optimized compositing expressions.